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PRELIMINARY DRAFT
ENVIRONMENTAL ASSESSMENT
of the
BASE REALIGNMENT ACTIVITIES
at
BERGSTROM AIR FORCE BASE, TEXAS

Prepared For:



DTIC
ELECTE
OCT 14 1993

TACTICAL AIR COMMAND
Bergstrom Air Force Base, Texas

By:

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ELECTE
OCT 14 1993



U.S. ARMY CORPS OF ENGINEERS
Fort Worth District

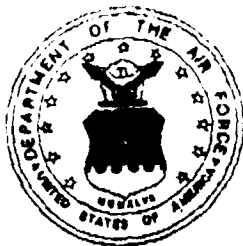
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1. INTRODUCTION

The United States Air Force Tactical Air Command (TAC) is proposing to relocate and realign nine EC-130H aircraft and associated personnel and equipment of the 41st ECS from Davis-Monthan Air Force Base (AFB), Tucson, Arizona, to Bergstrom AFB in Austin, Texas. In addition, it is planned to convert an Air Force Reserve unit from F-4 to F-16 aircraft. The unit conversion will be an aircraft for aircraft swap and will not involve a change of personnel. Two RF-4C training squadrons are to be deactivated. If all actions are completed as proposed, there will be 83 aircraft assigned to Bergstrom AFB, a reduction in total aircraft of 15, from the present number of 108.

This Environmental Assessment (EA) describes the impacts associated with the changes in flying operations at Bergstrom AFB and the minor increases in personnel and expenditures at the facility. Background environmental and economic data is presented to provide a description of the effected environment and socioeconomic situation.

Bergstrom AFB is located approximately 7 miles southeast of downtown Austin in Travis County, Texas (Figures 1 and 2). Bergstrom AFB is the home of the 67th Tactical Reconnaissance Wing (TRW). This unit is the host organization of the base. The primary mission of the Wing is to maintain a combat ready air reconnaissance force and conduct advanced reconnaissance training. Other major tenants at the base include Headquarters 12th Air Force, Headquarters 10th Air Force, Detachment 8, 602nd Tactical Air Control Wing, and 924th Tactical Fight Group. There are several other units attached to the base that are listed in Commander's Long Range Facility Improvement Plan Bergstrom 2000 (U.S. Air Force 1987).

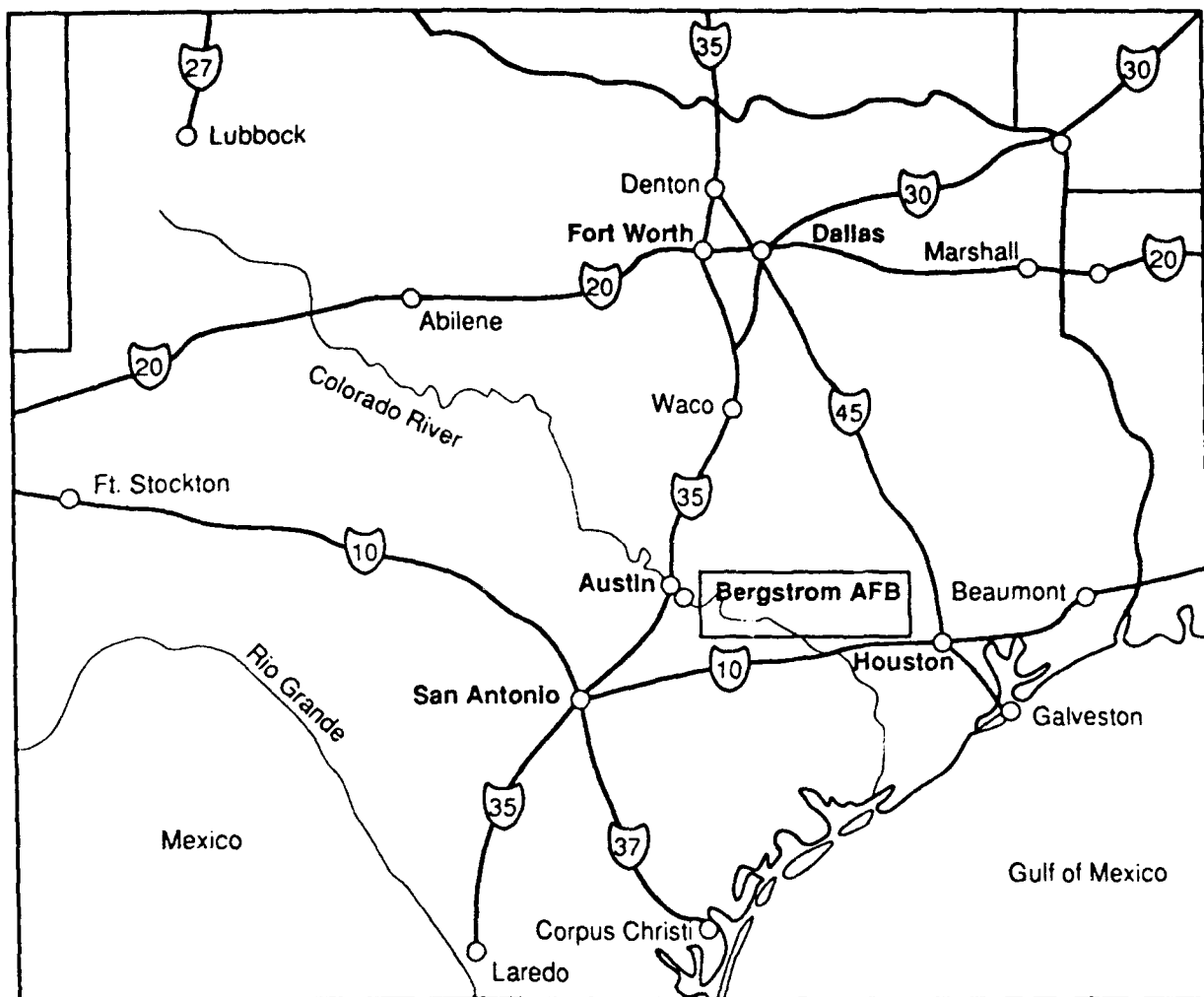


Figure 1. Location of Bergstrom Air Force Base, Texas.

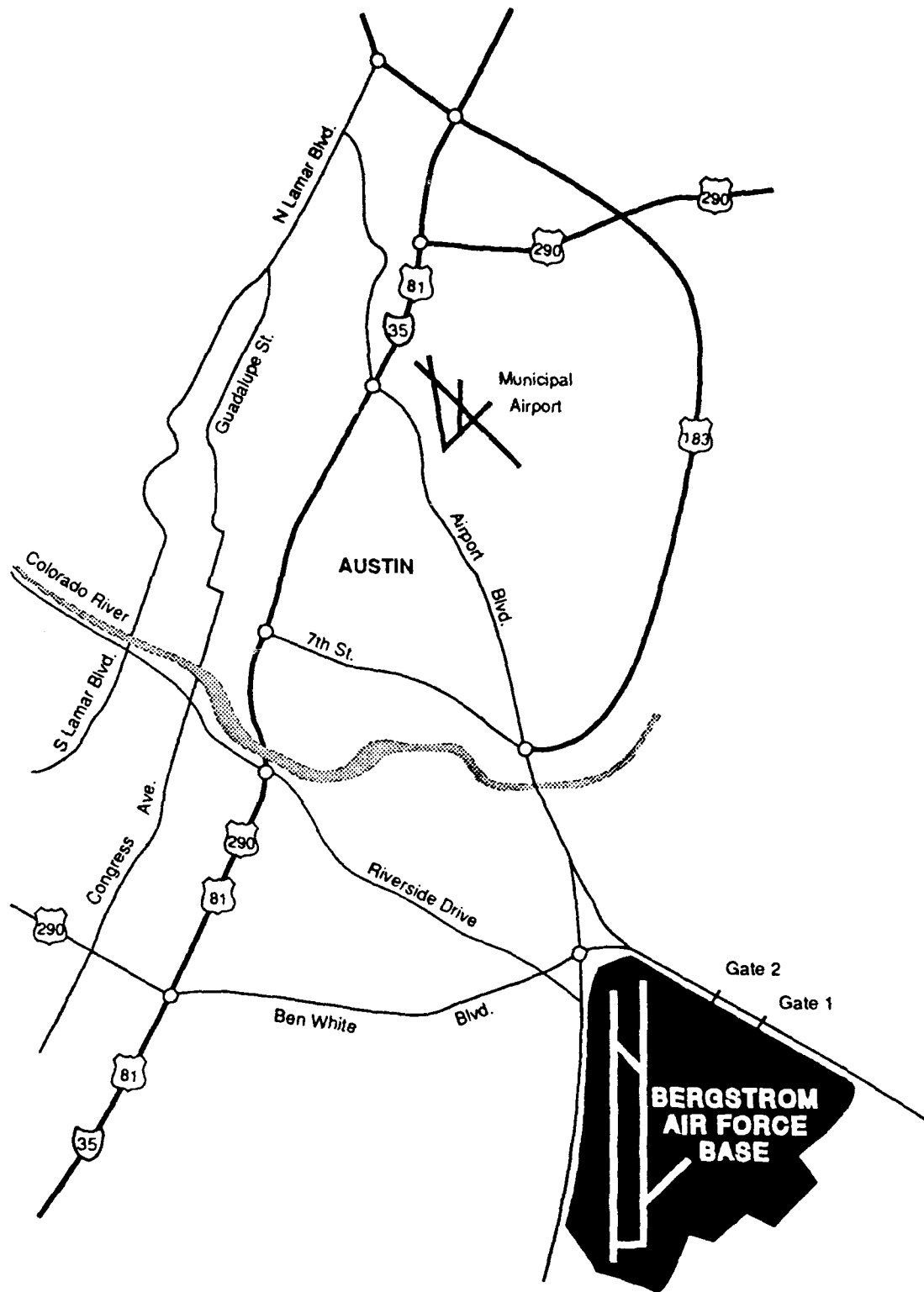


Figure 2. Location of Bergstrom Air Force Base within the Austin city limits.

II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

A. Description of Proposed Action and Alternatives

The proposed movement of nine EC-130H aircraft to Bergstrom AFB and the conversion of 924th Tactical Fighter Group (TFG) will result in changed flying operations at Bergstrom AFB. Two RF-4C training squadrons are to be deactivated. These plans are consistent with the overall Air Force mission and the mission of Bergstrom AFB. Implementation of these activities will result in an actual decrease in the numbers of aircraft located at the base and a concomitant decrease in numbers of sorties flow. Bergstrom AFB has been selected as suitable for the addition of the EC-130H aircraft from 41st ECS and the conversion should not disrupt current or planned operations and requirements at the base. The conversion of the Air Force Reserve unit to F-16 aircraft is consistent with Air Force policy to upgrade the capability of Reserve and operational units with Advanced Combat Fighters (U.S. Air Force 1981).

Table 1 displays the aircraft mix and the sorties per month at Bergstrom AFB before realignment/conversion and the mix after the conversion. There will be an approximate reduction of 18 percent in number of sorties. Rates of practice approaches per sortie will remain about the same for the 924th TFG after conversion to F-16 aircraft. Practice approach rate per sortie for the 67th TRW should decrease after deactivation of the two student flying training squadrons. The EC-130H aircraft will, depending on pilot proficiency, will average two additional take-off/landing maneuvers per sortie from Bergstrom AFB. Pilot proficiency sorties, averaging 3-5 per week, could involve 3 or more practice approaches per sortie. There will be a reduction in overall aircraft operations, defined as sorties plus practice approaches after realignment/conversion. There is a limited construction upgrade program associated with the realignment at Bergstrom AFB. The estimated amount of this construction is \$5.2 million during Fiscal Year (FY) 90. This plan essentially consists of six facility upgrades listed below:

- o Security and Simulator Facility

Table 1.

Aircraft Currently Assigned and Aircraft
Assigned Before and After Conversion/Realignment

Aircraft Assigned to Bergstrom AFB
Before Conversion/Realignment

| <u>Organization</u> | <u>Aircraft Type</u> | <u>Numbers of Aircraft</u> | <u>Numbers of Sorties/Month</u> |
|---------------------|--------------------------|--------------------------------|-------------------------------------|
| 67th TRW | RF-4C | 87 | 1096 |
| 924th TFG | F4-E | <u>21</u> | <u>288</u> |
| | TOTAL | 108 | 1384 |

Aircraft Assigned to Bergstrom AFB
After Conversion/Realignment

| <u>Organization</u> | <u>Aircraft Type</u> | <u>Numbers of Aircraft</u> | <u>Numbers of Sorties/Month</u> |
|---------------------|--------------------------|--------------------------------|-------------------------------------|
| 67th TRW | RF-4C | 55 | 756 |
| 924th TFG | F-16 | 18 | 280 |
| 41st ECS | EC-130H | <u>10</u> | <u>105</u> |
| | TOTAL | 83 | 1141 |

- o Secure Aircraft Parking Area
- o Central Security Control Facility
- o ECM/Computer Center
- o Alter Various Facilities
- o Warehouse Storage Facility

These plans are tentative, subject to change. These facility upgrades involve significant new construction.

Alternatives to the proposed action are limited, particularly when it is considered that the actual flight disturbances of the environment around the base are in general reduced due to decreased flight operations. Normally, an alternative considered is that of no action. This alternative would simply leave units and operations as they are at the base, and no conversion or realignment of existing units at the base would occur. In this case, base realignment is dictated by PL 100-526 and the no action alternative does not apply. In addition to opposing mission requirements of the base and the Air Force, this option would permit the present environmental degradation to continue, and would not allow the socioeconomic benefits of a slight increase in personnel at the base to occur. The second alternative is to locate the EC-130H unit at another installation and postpone or withdraw the conversion of aircraft. Again, this would not be consistent with the base or service mission, would keep the Reserve units' equipment and training below the current levels desired by the U.S. Department of the Defense, and any socioeconomic benefits to the local community from the conversion/realignment would be lost.

B. Environmental Consequences of Proposed Action and Alternatives

There are three impacts of minor intensity, with a long duration associated with the conversion/realignment. Aircraft overflights of the community should actually decrease as numbers of aircraft and sorties are decreased. It is predicted that noise levels associated with the EC-130H aircraft and the F-16 aircraft will be somewhat less than those presently occurring in the area of

the base. While admittedly a negative environmental impact, actual noise disturbances around the base should be lessened.

A positive impact upon local socioeconomic resources will occur from the transfer of personnel associated with the EC-130H aircraft as they move into the community. In addition, the construction/upgrade of facilities required for the EC-130H aircraft will provide some input of government funds into the community through contracting for construction and supplies. Air quality impacts, the third environmental impact associated with the proposed action, should also be lessened as numbers of flights are reduced and the F-16 is a more fuel efficient aircraft with fewer emissions (U.S. Air Force 1985).

The alternative of no action would essentially leave environmental effects of operating the base as they are at the present time. Any positive effects upon socioeconomic resources from the proposed action would be negated. Alternate location of the EC-130H will allow some reduction of noise disturbance; failing to convert the Reserve unit to F-16 aircraft would keep noise around the base close to present levels. Again, any positive socioeconomic benefits would be negated. Air quality impacts will remain the same with the no action alternative, and not be measurably different with the alternate locating alternative.

Land use conflicts with base operations are possible. It is the policy of the Air Force to work closely with the surrounding community. Bergstrom AFB has historically cooperated with development interests in Austin (Knapp 1989) and has recently provided input to the City of Austin as the municipality completed its planning documents, known as "Austin Plan". The potential for land use conflicts, particularly those involving residential uses and commercial developments, changes around the base with the economic health of the surrounding communities. Bergstrom AFB has detailed specific policies related to land use development (U.S. Air Force 1987).

C. Mitigation Measures

In general, mitigation measures consist of restricting flying times and activities to certain hours of the day and arrival/departure tracks that are least disturbing to the surrounding environment. Typically, the F-16 and EC-130H aircraft are quieter than the F-4 aircraft (U.S. Air Force 1989). The realignment will not require any unit to change their normal operating days and hours. Mitigation measures for any construction upgrade associated with realignment will include dust suppression and noise reduction procedures to the extent practicable.

Engine runups at the base from engines on the ground for maintenance should be less after realignment as total aircraft numbers would be less. This permits, of course, a reduction in noise on the ground. The base will use "Hush Houses" that are structures for noise suppression to conduct engine maintenance, further reducing any noise impacts. An increased level of hydrazine, associated with the F-16 aircraft, may be stored at the base. Adequate storage and spill response procedures are detailed in the spill response plans and hazardous waste plans prepared by the base (U.S. Air Force 1984, 1987). There are no plans to increase the motor fuel or aviation fuel requirements at the base (Knapp 1989).

Extensive noise mitigation measures have been described in the Air Installation Compatible Use Zone Study (AICUZ) (U.S. Air Force 1987). These measures are listed below:

1. Normal flight operations will be limited to no more than six days per week.
2. Normal flight operations are restricted to the period between 6:30 AM and 10:30 PM.
3. Ground runup of aircraft has been restricted to the hours between 6:00 AM and 10:00 PM.
4. Operation of aircraft engine test stands has been restricted to the hours between 7:00 AM and 8:00 PM.

5. Local flight patterns have been established to minimize airborne noise intrusion into adjacent communities as far as possible.
6. Radar approach control and Bergstrom AFB precision approach control are used to insure that pilots comply with established northern glide slopes and approach altitudes of the local flight patterns.
7. Landing aircraft approach Bergstrom AFB from the south whenever weather conditions permit to minimize air traffic and noise intrusion north of the installation.
8. Aircraft operations in the local area of Bergstrom AFB will be minimized by shifting certain flight training activities to an auxiliary airfield.
9. Aircraft assigned to Bergstrom AFB use reduced power settings and airspeeds, consistent with safe flying operations, during departures from the base.
10. Aircraft assigned to Bergstrom AFB climb to the highest assigned altitudes as quickly as possible in an effort to mitigate noise impact.

These measures, combined with a reduction in actual aircraft numbers and sorties, should mitigate, and actually lessen the amount of noise intrusion in the environment surrounding the base.

D. Preferred Alternative

The preferred alternative, both from the proponent and environmental view, is the proposed activity. The realignment will actually lessen aircraft traffic at the installation and will reduce the amounts of air and noise emissions into the surrounding environment. In order of preference, the alternatives are: (1) conversion and realignment; (2) conversion or realignment; and (3) no action. Implementing the preferred alternative permits an increase in the mission readiness of the Reserve unit, and will allow a slight positive impact upon local socioeconomic resources associated with construction/upgrade of facilities, and the increase in base personnel of approximately 455 additional military personnel.

ENVIRONMENT

A. General Location

Bergstrom AFB is located seven nautical miles southeast of the center of Austin, Texas. The installation is adjoined on the north and northwest by Austin city limits. The community of Del Valle borders the base on the northeast side. Several smaller residential communities surround the remainder of the base. There are three other airfields within a 50 mile radius of Bergstrom AFB: Robert Mueller International, Austin, Texas; Robert Gray AAF; and Fort Hood AAF, Killeen, Texas. Instrument flight rules (IFR) of Bergstrom AFB arrival and departure flight procedures are coordinated with and controlled by Austin Radar Approach Control (ARAC) and Houston Air Route Traffic Control Center (ARTCC). In addition to commercial air traffic, there is considerable private traffic in the area.

B. Environmental Description

Part of the information about the existing environment around Bergstrom AFB has been obtained in a previous Environmental Impact Statement completed in June 1981 (Air Force 1981). Since that time, the surrounding area has become more congested with the concomitant increases in construction, vehicular traffic, and population pressures on the small amount of remaining habitat and natural areas. Air quality at the base is good and the region around the base is included within the Austin-Waco Air Quality Control Region. Measured emissions are meeting or exceeding the National Ambient Air Quality Standards (NAAQS) and are in attainment (Butts 1989):

total suspended particulate (TSP) - attainment

sulfur dioxide (SO₂) - attainment

ozone (O₃) - attainment

carbon monoxide (CO) - attainment

nitrogen dioxide (NO₂) - attainment

Weather in the area is generally a modified sub-tropical climate, predominantly continental during the winter months and marine during the summer months (Weather Almanac 1977). Normal temperatures range from approximately 50° in January to 84° in July. Average annual rainfall is approximately 25-27 inches. Northerly winds prevail during most of the winter, while southeasterly winds from the Gulf of Mexico prevail during the summer. Tropical storms occasionally occur in the area, bringing strong winds and significant amounts of precipitation during a short period of time.

Soils in the area of the base are generally blackland clay and silty loam derived from the Gulf Coastal Plains and thin limestone soils on the Edwards Plateau. Land surface form, as classified by the U.S. Fish and Wildlife Service (1982) is 50-80 percent of the area is gently sloping, with local relief 100-300 feet above sea level, with 50-75 percent of gentle slope in upland areas. The eco-region where the base is located is classified as Prairie Division, Oak/Bluestem Parkland section.

Water resources of the area are provided by the Colorado River watershed and aquifers underlying what is referred to as the nonglaciaded central region of the United States (Heath 1984). This region is geologically complex. It is primarily underlain by consolidated sedimentary rocks ranging in age from Paleozoic to Tertiary, consisting of largely sandstone, shale, carbonate rocks (limestone and dolomite, and conglomerate). Yields of groundwater wells in the area depend upon: (1) the number and size of fractures that are penetrated, increasing the supply, (2) rate of recharge, and (3) the storage capacity of the bedrock and regolith. With the exception of salty water at relatively shallow depths, the water quality is good. Present and future water requirements of the base are met by the City of Austin. There are no known energy resources or developments in the immediate area, nor are there unique geologic formations or seismic concerns in the immediate area.

The base and surrounding areas are composed of several vegetation regimes (McMahan, Frye and Brown 1984). Included are crops and urban areas, post oak woodland forest, and live oak/mesquite/ash juniper parks. In lieu of compiling

species lists, the reader is referred to the following publications for specific information about mammals, birds, reptiles/amphibians and fishes present in Travis County of:

- o mammals -- Hall 1981
- o birds -- Oberholser 1974
- o reptiles/amphibians -- Dixon 1987
- o fishes - Lee et al. 1980

There have been no surveys of the base for threatened/endangered species of plants or animals. Biological productivity and diversity of biological resources in the base area are low due to urbanization. Wildlife would generally be encountered in or near the riparian habitats encountered along the Colorado River. The proposed flight operations are not expected to have any effect upon federally endangered/threatened species or habitats (Short 1989). While there are several state listed species within or potentially within Travis County (Sullivan 1989), the proposed action will not affect any known habitats or force any species to alter migration routes (Appendix A). There are no historical buildings or structures on the base.

The Austin area economy is diverse and is supported by government expenditures, the University of Texas, an expanding tourism sector, and an increasing amount of industrialization, primarily related to electronics. The 1980 estimated population for the city and Travis County is 353,200 and 424,000, respectively. The major economic influences upon the Austin economy from Bergstrom AFB are payroll, military and civilian, plus goods and services purchased by the base.

Specific economic resource details are provided in the Bergstrom AFB Economic Resource Impact Statement (U.S. Air Force 1988). During FY 88, the Bergstrom AFB work force totalled about 8,040 employees. These figures include 4,951 active duty Air Force; 1,361 Air Force Reserves; 1,057 appropriated fund civilians; and 671 civilians in other capacities. Approximately 8,000 dependents of Active Duty Air Force personnel reside in the community, as well as 11,000 military retirees. The combined FY 88 payroll totalled nearly \$337 million.

Total contracting and procurements during FY 88 were over \$54 million for goods and services. Counties impacted by these personnel and related expenditures include Travis, Williamson, Lee, Bastrop, Caldwell, Guadalupe, Hays, Comal, Blanco, and Burnett. While not the single greatest contributor, the base is important to the local economy and continues a history of active participation in area social/cultural affairs as well.

IV. ENVIRONMENTAL CONSEQUENCES

A. Direct and Indirect Effects and Their Significance

1. Climate

The realignment and small amount of proposed construction will not modify local wind patterns or behavior, nor will it create any obstructions. Local temperature and precipitation/humidity patterns will not be impacted.

2. Visual Quality

The content of visual scenes perceived by local residents of the surrounding area will not be impacted. Some residents may notice the different types of aircraft, i.e., the profile of an EC-130H versus the smaller F-16 and be alarmed. This is a minor, non-significant impact. The visual coherence of the area will not be impacted.

3. Air Quality

Some minor impacts, of a short duration, consisting of increased dust amounts, may result from construction/upgrade of facilities associated with the realignment/conversion. The aircraft will generate and disperse atmospheric contaminants during flight, and the engines will generate some contaminants during maintenance work on the ground. There will not be any noticeable odors associated with the realignment/conversion. Aircraft engine types and emissions are listed in Table 2. While notable emissions are expected, it is necessary to include consideration of meteorological conditions that determine the dispersion potential of the atmosphere.

Poor conditions, conducive to accumulation of pollutants, typically occur in early morning hours. Calm wind speeds and a stable atmosphere cause very little dilution and dispersal of pollutants. Recent data from the Texas Air Quality Control Board, contained in Appendix B, clearly indicates the area is in

Table 2. Bergstrom AFB Engine Types and Emissions.

| Aircraft | Engine Type | Engine Mode | Emissions/Lbs per 1000 lbs. fuel | | | |
|----------|-------------|--------------|----------------------------------|------|-----|------|
| | | | CO | HC | NOX | PART |
| EC-130 | T56-07 | Idle | 32 | 21 | 3.9 | 0.83 |
| | | Approach | 22.2 | 12.4 | 4.4 | 0.97 |
| | | Intermediate | 2.4 | 0.5 | 9.2 | 0.51 |
| | | Military | 2.1 | 0.4 | 9.3 | 0.5 |
| F-16 | F100-200 | Idle | 34 | 3.2 | 3.3 | 0.12 |
| | | Approach | 5.8 | 1.9 | 6.7 | 0.27 |
| | | Intermediate | 1.6 | 0.1 | 9.8 | 0.47 |
| | | Military | 0.9 | 0.1 | 27 | 0.34 |
| | | After Burn | 4.0 | 0.01 | 3.1 | 0.15 |

CO=Carbon Dioxide

HC=Waste Hydrocarbons

NOX=Nitrogen Oxides

PART=Particulate Matter

Source: U.S. Air Force, 1985. Aircraft Emissions Estimator. Air Force Engineering And Services Center, Tyndall AFB.

attainment. The realignment/conversion will actually lessen the number of aircraft sorties. In addition, the F-16 and EC-130H engines are more efficient than current F-4 aircraft at the base, resulting in less potential for contamination. Air quality may be slightly degraded, leading to a minor, insignificant impact to air quality.

4. Soils

This action will not impact soil structure, slope stability, bearing capacity, or local topography. There may be minor alterations at site specific locations during associated construction/upgrading of facilities on the base. There will not be a substantial loss of soils due to construction or operational practices preventing any wind or soil erosion.

5. Geology

There are no unique or special geological features within the base area. There is not a risk of seismic activity or subsidence from the realignment/conversion or related construction. There are no known mineral/energy resources of significant value in the immediate area. The proposed activities will not lead to an increase in rock weathering or degradation.

6. Water Resources

As indicated previously in the document, no additional water development is required for the proposed action. The local hydrologic balance will not be impacted. Local surface waters and watersheds will not be affected. There will not be an increase in sedimentation or flooding potential. Present water quality and groundwater regimes will not be altered.

7. Biological Resources

There are no known plant communities of significant scientific value within the base, or outside that may be impacted by the proposed action. Existing diversity

(species and spatial) and productivity of plants and animals within and near the base will not be altered. Local biogeochemical nutrient cycling will not be impacted.

8. Environmentally Sensitive Areas

There are no prime agricultural lands, forests or wetlands on the base or within the flight approach areas. There are no landfills or hazardous/toxic waste disposal areas on the base or within flight approach areas.

9. Land Use and Land Capability

Bergstrom AFB operates attached aircraft under guidelines presented in the base Air Installation Compatible Use Zone Study or AICUZ (U.S. Air Force 1987). The project will not impact or conflict with existing or proposed land uses beyond those that may be encountered when any new development may be proposed near the base. The City of Austin is the only government body in the base area that has any zoning ordinances or a comprehensive land use plan. A large proportion of the land within the Bergstrom AFB AICUZ is under county jurisdiction, leaving those areas without land use regulations. Bergstrom AFB has stressed the need to work closely with county officials to use available legislation to minimized incompatible development on county lands around the base.

Land use planning is dynamic, and is reflective of changing economic, social and physical environments. AICUZ boundaries and noise contours describe the impacts upon a specific aircraft operational environment, and will change if operations within the boundaries change. Present accident potential zones (APZs) are illustrated in Figure 3. Every attempt is made by the Air Force to reduce this potential through constant training and aircraft maintenance. These established boundaries are not expected to change significantly due to this proposed action. The EC-130H aircraft are electronic platforms, so no short landings, parachute extractions or similar dangerous activity will be conducted at Bergstrom AFB.

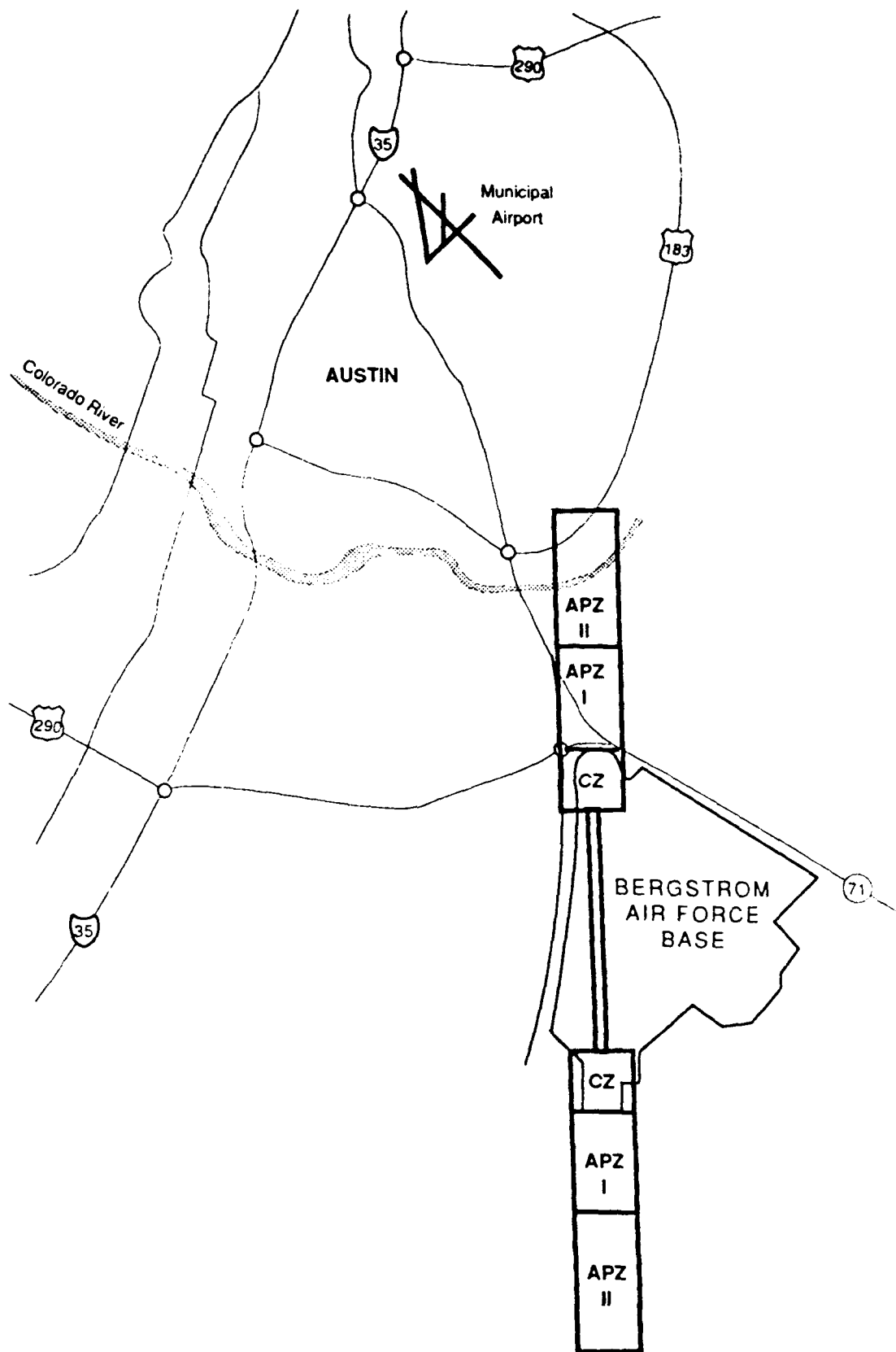


Figure 3. Present accident potential zones, Bergstrom AFB, Texas.

10. Noise and Vibration

Present noise contours are illustrated in Figure 4. Figure 5 illustrates the predicted contours after realignment/conversion. These contours actually reflect a 5 percent reduction in surface area exposed to noise after the proposed realignment/conversion. The amount of noise that actually disturbs a person is dependent upon individual tolerance and acceptance of the aircraft noises. The quieter aircraft and reduction in sorties may actually improve community acceptance of the noise associated with Bergstrom AFB. Some individuals may notice that different types of aircraft are operating and express some concern. Any noise from associated construction will be of a minor negative impact and of short duration. Aircraft noises are considered to be a moderate negative impact for a long duration.

11. Cultural Resources

Title 36 CFR Part 800.4 requires federal agencies to identify National Register of Historic Places (NRHP) or NRHP-eligible properties that are located within the area of an undertaking's potential environmental impact and that may be affected by that undertaking. Properties potentially susceptible to damage or to any other effect from low flying aircraft are limited to above-ground structures. A previous review of the National Register of Historic Places as published in the Federal Register (6 February 1979 and 18 March 1980) and of NRHP sites in Texas (Steely 1984) indicates that no NRHP-listed properties are located beneath the flight approach areas. A search of the files of the Texas Historical Commission and the Texas Archeological Research Laboratory is currently underway to locate any architectural structures which may have been more recently listed on the NRHP or which may be eligible for inclusion on the NRHP and which may be in the flight approach areas. However, since the cumulative effect on the surrounding area as a result of this proposed realignment will be to decrease noise pollution, no NRHP or NRHP-eligible sites should suffer any significant impact.

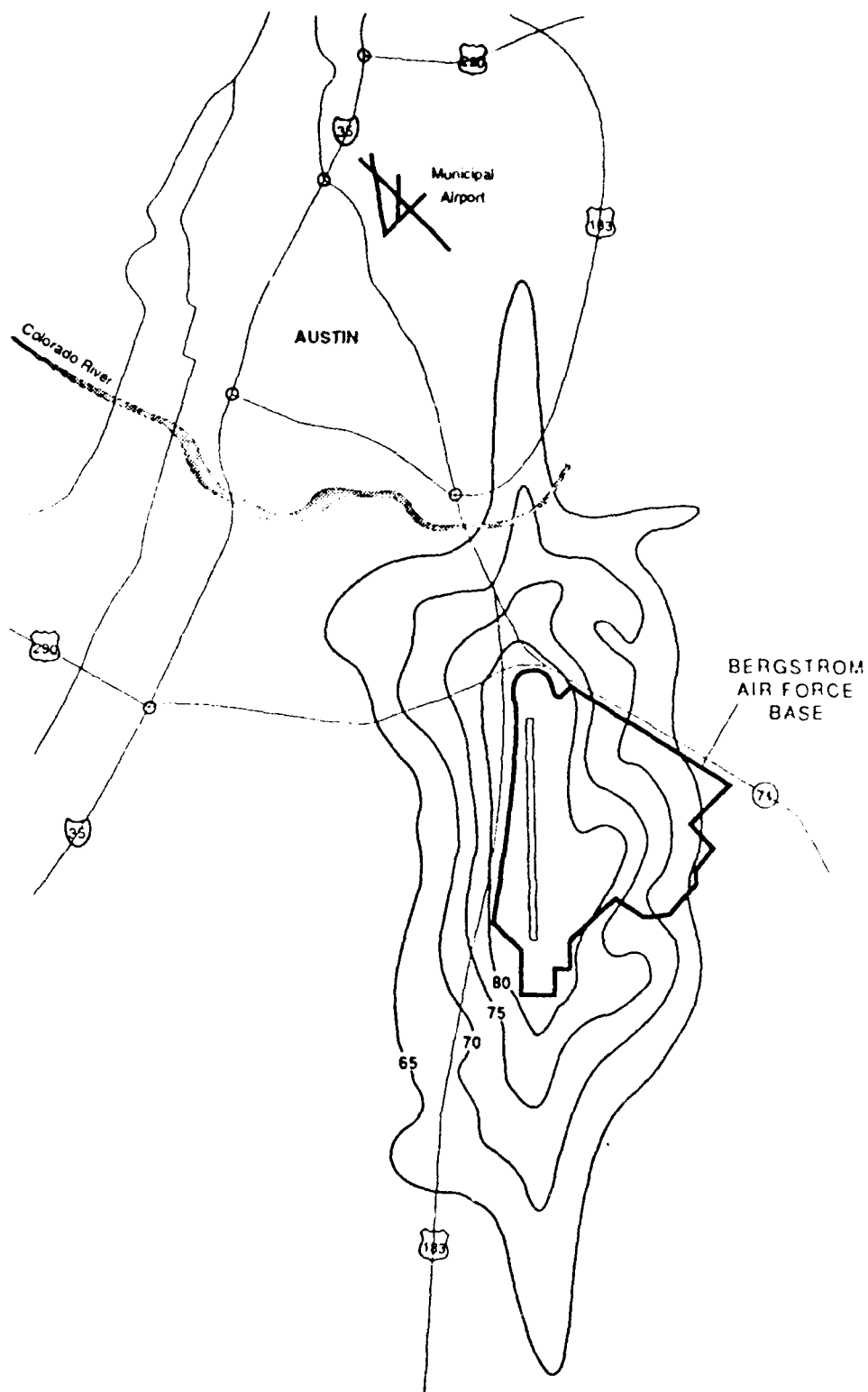


Figure 4. Present noise contours, Bergstrom Air Force Base, Texas.

*Wind not shown
It may be shown*

Figure 5. Predicted contours after realignment/conversion, Bergstrom Air Force Base, Texas.

The realignment will require 455 additional people to be assigned to the base. The increase in this payroll should be considered a positive impact to the local community. The construction program will also contribute positively to area business opportunities. The local population dynamics, land use/settlement patterns, labor supply/employment structure, and income distribution/consumption patterns will not be effected by the proposed action. Area cultural, social and recreational activities will not be affected by the increase in personnel. It is not expected that area schools and other public entities will be negatively impacted by the influx of military personnel and their dependents.

B. Adverse Environmental Effects Which Cannot Be Avoided Should The Proposal Be Implemented

The proposed action will require the continual presence of noise associated with aircraft operations/maintenance in the local environment. Noise contours permit the prediction of where the noise may be encountered, thus providing assistance to planners. It should be noted again that the amount of noise is actually being reduced. There are air emissions associated with operating F-16 and EC-130H aircraft. These are minor, and typically disperse rapidly. As these aircraft are, in general, more fuel efficient than F-4 aircraft, air emissions will probably be reduced. The accident potential associated with these aircraft is not any greater than that normally associated with military aviation.

C. Relationship Between Short-Term Uses of Man's Environment and Long-Term Productivity

Aircraft have been operational at Bergstrom AFB since 1942, when the area was primarily rural. Rapid urban growth will, no doubt, lead to land use conflicts simply because the base is present and does withdraw some land. It is also to be expected that the base mission may change over time. The proposed actions described in this document do not alter the long term potential or actual

the increase in base personnel of approximately 455 additional military personnel.

productivity of area ecosystems to a measurable extent, nor do they conflict with most short term users of the area environments.

D. Irreversible or Irretrievable Commitment of Resources

Jet fuel (JP-4) consumption is required to operate Bergstrom AFB aircraft and fulfill the military missions assigned to the base. It is not planned to significantly increase fuel consumption at the base, nor is it planned to construct more fuel storage and handling facilities. The planned construction and upgrade of selected facilities at the base will withdraw some land and building materials. The land is within the boundaries of Bergstrom AFB, and in areas of the base where the existing land use is already aircraft related.

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Weather Almanac 1977

VI. ACRONYMS AND ABBREVIATIONS

APZ - Accident Potential Zone
AFB - Air Force Base
AICUZ - Air Installation Compatible Use zone Study
ARTCC - Air Route Traffic Control Center
EA - Environmental Assessment
FY - Fiscal Year
IFR - instrument flight rules
NAAQS - National Ambient Air Quality Standards
NRHP - National Register of Historic Places
RAPCON - Radar Approach Control
TAC - Tactical Air Command
TFG - Tactical Fighter Group
TRW - Tactical Reconnaissance Wing

ZONE
capitalized

IFR-CAPS

APPENDIX A

2-12-89-I-331



**UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE**

Ecological Services
9A33 Fritz Lanham Building
819 Taylor Street
Fort Worth, Texas 76102

July 12, 1989

Mr. Rick M. Billings
Geo-Marine, Inc.
815 Throckmorton St., Suite 306
Fort Worth, TX 76102

Dear Mr. Billings:

This responds to your June 27, 1989 request for information concerning endangered species in the Travis County area around Bergstrom Air Force Base, Austin, Texas. We understand that the proposed project involves relocation of nine aircraft based at Davis-Monthan Air Force Base to Bergstrom and also involves conversion of Air Force Reserve usage of F-4 aircraft to F-16 aircraft. The U.S. Fish and Wildlife Service (Service) has reviewed this proposed action in regard to endangered species.

The following federally protected species are listed for Travis County or are statewide migrants: the endangered black-capped vireo, bald eagle, and whooping crane and the threatened Arctic peregrine falcon. Each of these avian species could generally be expected to be impacted by heavy aircraft activity in their immediate ranges or migratory zones. However, project plans at Bergstrom call for maintaining the existing airspace and flight paths. There will be no expansion of current airspace usage. Additionally, the switch from F-4 to F-16 aircraft will result in reduced exhaust fumes and noise. No habitat removal activities are associated with the proposed project.

In conclusion, the proposed flight operations realignment project by the U.S. Air Force at Bergstrom Air Force Base is not expected to have any impacts on threatened or endangered species or their critical habitats. If you have any questions concerning these comments, please contact Dawn Whitehead of this office at (817) 334-2961.

Sincerely,

R. M. Short
Robert M. Short

for Field Supervisor

APPENDIX B

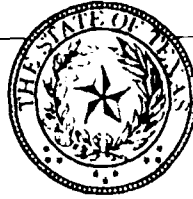
TEXAS AIR CONTROL BOARD

6330 HWY. 290 EAST, AUSTIN, TEXAS 78723, 512/451-5711

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C. H. RIVERS
MARY ANNE WYATT

July 18, 1989

Mr. Rick Billings
Geo-Marine, Inc.
1316 Fourteenth Street
Plano, Texas 75074

Dear Mr. Billings:

The following information concerning air quality is in reference to your inquiry regarding Bergstrom Air Force Base, Travis County, Texas. The attainment status of Travis County, with regard to air quality for air contaminants that have National Ambient Air Quality Standards (NAAQS), is:

Sulfur Dioxide (SO₂) -- Attainment (meets or is better than NAAQS)
Carbon Monoxide (CO) -- Attainment
Nitrogen Dioxide (NO₂) -- Attainment
Total Suspended Particulate (TSP) -- Attainment
Ozone (O₃) -- Attainment

I am enclosing 1988 data summaries for air monitoring done in Travis County.

The proposed realignment of equipment and personnel should not have significant effect on air quality.

If you have any questions on this information, please contact me at the Texas Air Control Board in Austin.

Sincerely,

A handwritten signature in cursive script that reads "Larry Butts".

Larry Butts
Air Quality Information Group
Quality Assurance Division

Enclosures



PM-10 Summary 1988 ($\mu\text{g}/\text{m}^3$)

| SAROAD | Site Name | Type | 24-Hour High | Exc #3 | Annual Arithmetic Mean | Number of Samples | Annual % Data Return | Valid Quarters |
|-----------------------------|------------|------|-----------------|-----------|------------------------------|-------------------------|----------------------------|-------------------|
| NAAQS | | | #150 | #3 | 50 | | | |
| Houston | | | | | | | | |
| 2560035H | Clinton | S | 89 | 0 | *42.3 | 28 | 15 | 1 |
| 2560034F | East | S | 76 | 0 | 32.1 | 96 | 94 | 4 |
| 4060002F | Pasadena | S | 72 | 0 | *28.5 | 26 | 43 | 2 |
| 2330024F | Aldine | D/S | 69 | 0 | *25.7 | 93 | 76 | 2 |
| 2560054H | Kress | S | 64 | 0 | *39.9 | 16 | 26 | 0 |
| 2560037H | Crawford | S | 46 | 0 | *28.9 | 7 | 11 | 0 |
| Dallas | | | | | | | | |
| 1310018H | Morrell | S | 77 | 0 | *39.6 | 56 | 31 | 0 |
| 1310067H | Toronto | S | 56 | 0 | *34.0 | 7 | 11 | 0 |
| 1310050H | Convention | S | 53 | 0 | *34.3 | 16 | 26 | 0 |
| 1310049F | Fish Trap | S | 49 | 0 | *25.5 | 52 | 28 | 0 |
| 1310020H | Lancaster | S | 45 | 0 | *27.0 | 22 | 36 | 0 |
| 1310035H | Coit | S | 43 | 0 | *25.9 | 19 | 31 | 0 |
| Fort Worth | | | | | | | | |
| 1880023F | Worth Hgts | S | 71 | 0 | *31.5 | 28 | 46 | 2 |
| 1880060H | Geddes | S | 58 | 0 | 25.7 | 113 | 93 | 4 |
| 1880029H | FAA | S | 37 | 0 | *21.8 | 14 | 23 | 0 |
| San Antonio | | | | | | | | |
| 4570034F | ITC | S | 82 | 0 | 28.6 | 120 | 98 | 4 |
| 4570036F | North | D | 61 | 0 | 23.2 | 115 | 94 | 4 |
| Austin | | | | | | | | |
| 0220010F | Ridgetop | S | 76 | 0 | 24.8 | 121 | 99 | 4 |
| El Paso | | | | | | | | |
| 1700002G | Tillman | S | 263 | 12 | 61.9 | 311 | 85 | 4 |
| 1700041F | Vilas | S | 215 | 4 | *93.0 | 40 | 22 | 1 |
| 1700037F | UTEP | D | 139 | 0 | *41.0 | 81 | 44 | 2 |
| 1700038G | Riverside | S | 104 | 0 | *56.2 | 14 | 23 | 1 |
| 1700029G | Ivanhoe | S | 59 | 0 | *30.6 | 14 | 23 | 1 |
| 1700045F | Lindbergh | S | 57 | 0 | *39.1 | 14 | 23 | 0 |
| 1700010G | NE Clinic | S | 52 | 0 | *28.8 | 14 | 23 | 1 |
| Corpus Christi | | | | | | | | |
| 1150020F | Navigation | S | 97 | 0 | 29.2 | 224 | 90 | 4 |
| 1150012F | Leopard | D/S | 51 | 0 | 22.9 | 116 | 95 | 4 |
| Lubbock <i>Andit Cailun</i> | | | | | | | | |
| 3340001F | Lubbock | S | 180 | 1 | 38.1 | 164 | 90 | 4 |
| Galveston-Texas City | | | | | | | | |
| 5170002F | Texas City | S | 144 | 0 | 25.7 | 139 | 74 | 3 |
| Amarillo | | | | | | | | |
| 0070002F | Amarillo | S | 61 | 0 | *26.5 | 8 | 13 | 0 |
| Odessa | | | | | | | | |
| 3910002F | Odessa | S | 108 | 0 | 26.6 | 102 | 84 | 4 |
| Laredo | | | | | | | | |
| 3140014F | Laredo | S | 40 | 0 | *23.0 | 13 | 21 | 1 |

Type: S - SSI; D - Dichot; D/S - Dichot first part of year, SSI remainder of year

Expected number of days over $150 \mu\text{g}/\text{m}^3$ not to exceed 3 days over a 3-year period

* Less than 75% data return, not valid for NAAQS comparison

SUMMARY OF 1988 CAMS DATA COMPARED WITH AMBIENT STANDARDS

| Air Quality Control Region Number | Station Location | Maximum Allowable by Ambient Air Standards (parts per million) | Ozone Highest Hour | Number of Days with Ozone > 0.12 ppm Average of one day for 3 yrs | Carbon Monoxide 2nd Highest Hour | Carbon Monoxide 2nd Highest 8-Hours (Nonoverlapping) | Sulfur Dioxide 2nd-Highest 24-Hours | Sulfur Dioxide Annual Mean | Sulfur Dioxide 2nd Highest 3-Hours (Nonoverlapping) | Nitrogen Dioxide Annual Mean |
|--------------------------------------|------------------------|--|--------------------|---|-------------------------------------|--|--|-------------------------------|---|---------------------------------|
| | | | | | | | | | | |
| 3 | Austin, Northwest | 3 | 0.12 | 0 | 35 | 9 | 0.14 | 0.03 | 0.5 | 0.05 |
| | North of Austin | 25 | 0.11 | 0 | | | | | | |
| | Austin, Downtown | 32 | | | 5.6 | 2.6 | 0.01 | 0.003 | 0.02 | 0.018* |
| 5 | Corpus Christi, West | 4 | 0.11 | 0 | | | 0.01 | 0.002 | 0.08 | |
| | Corpus Christi, Tuluso | 21 | 0.12 | 0 | | | 0.02 | 0.002 | 0.09 | |

* Annual Mean is not valid
since there was less than
75% data return.